REMARKS

Claims 1-16 are pending in this application, with Claims 1, 5, 10 and 13 amended. The Applicants respectfully request reconsideration and review of the application in view of the amendments and the following remarks. By the foregoing amendments, no new matter has been added.

Before addressing the merits of the rejections based on prior art, a brief description of the present application is provided. The present invention is directed toward a radio frequency identification (RFID) transponder that is both powered by an internal battery and has the ability to passively recover power from an interrogating RF field. In one embodiment of the present invention, as shown in Figure 2, the RF transponder includes an energy storage device (e.g., capacitor 46) connected to an internal battery 52 via a first isolation circuit (e.g., diode 48) and a rectified RF power source (e.g., as output by the RF front end 32) via a second isolation circuit (e.g., diode 44). This allows the energy storage device (e.g., capacitor 46), which is used to power the electronic circuitry of the RF transponder (e.g., digital state machine 34, memory 38, etc.), to be charged by the battery 52 when the battery 52 has capacity and to be charged by the rectified RF power source when the battery 52 does not (e.g., if the battery is depleted).

Features of this embodiment include the first and second isolation circuits (e.g., diodes 44, 48), which (i) direct the power from the RF power source and the battery to the energy storage device and (ii) protect circuitry and/or signals. For example, the first isolation circuit (e.g., diode 48) prevents the rectified RF power from negatively impacting the battery. Similarly, the second isolation circuit (e.g., diode 44) prevents the battery power from negatively impacting, for example, the RF front end 44.

In this embodiment, the RF front end is used to rectify the incoming RF signal. The RF front end also serves the more traditional role of (i) receiving an RF signal, (ii) modulating information onto the RF signal, and (iii) backscattering the modulated RF

signal -- commonly referred to as "backscattered modulation." The claims have been amended to further emphasize this aspect of the invention.

The Examiner rejected Claims 1, 2 and 5-15 under 35 U.S.C. § 102(b) as being anticipated by Fischer et al. (U.S. Pat. No. 5,552,641). The Examiner further rejected Claims 3, 4 and 16 under 35 U.S.C. § 103(a) as being unpatentable over Fischer et al. in view of Roz (U.S. Pat. No. 6,462,647). These rejections are respectfully traversed.

Fischer is directed toward a remote control access device for a motor vehicle. *See, e.g.*, Abstract. Specifically, as shown in Figure 1, a first wireless unit 1, which is located in a motor vehicle 4, enters into a "question and answer dialog" with a second wireless unit 2 located outside the motor vehicle 4. Col. 4, ll. 2-8. During normal operation, the first wireless unit 1 transmits a question code to the second wireless unit 2. In response, the second wireless unit 2 transmits an answer code to the first wireless unit 1. If the answer code matches an expected code, the motor vehicle 4 is unlocked. Col. 4, ll. 11-31.

The first and second wireless units are shown in greater detail in Figures 3 and 4, respectively. As shown, the first wireless unit includes several receivers (i.e., 14, 15 and 17) and a transmitter 10. As previously discussed, the first wireless unit (via its transmitter) is adapted to independently transmit a wireless signal (e.g., a question code). Col. 4, ll. 11-31. There is no disclosure or suggestion in Fischer that the first wireless unit is also adapted to operate as an RFID transponder. The first wireless unit communicates with remote devices by using a ***transmitter*** to generate and transmit a wireless signal. The first wireless unit does not include an ***RF front end*** (or circuitry) for modulating information onto (and backscattering) a received RF signal.

The second wireless unit, as shown in Figure 4, includes a receiver 21 and several transmitters (i.e., 22, 25). As previously discussed, the second wireless unit (via one of its transmitters) is adapted to transmit a wireless signal (e.g., an answer code) in response to receive a request for the same (e.g., a question code). Col. 4, ll. 11-31. However, the second wireless unit (via one of its transmitters) is also adapted to

independently transmit a wireless signal if the "key button" 29 is depressed. Col. 6, ll. 38-54. There is no disclosure or suggestion in Fischer that the second wireless unit is also adapted to operate as an RFID transponder. The second wireless unit (as with the first) communicates with remote devices by using a ***transmitter*** to generate and transmit a wireless signal. The second wireless unit does not include an ***RF front end*** (or circuitry) for modulating information onto (and backscattering) a received RF signal. *See, e.g.*, page 1, lines 23-25 of the present application ("Since RFID tags using backscattered modulation do not include a radio transceiver, they can be manufactured in a very small, lightweight and hence inexpensive units.").

Because Fischer fails to disclose or suggest "[a]n RFID transponder, comprising: electronic circuitry to provide RFID functionality, including an RF front end for imparting information onto a received RF signal" the rejection of independent Claim 1, as well as independent Claims 10 and 13, which include similar limitations, should be withdrawn. Furthermore, the rejections of Claims 2-9, 11-12, and 14-16, which depend therefrom, respectively, should also be withdrawn.

The rejection of Claim 5 should also be withdrawn because Fischer fails to disclose or suggest an "RF front end ... adapted to receive said interrogating RF field and provide a rectified voltage therefrom." Not only does Fischer not disclose an "RF front end," but the only device present in Fischer that could be used to receive an RF field is the receiver, and there is no disclosure or suggestion that the receiver of Fischer is further adapted to rectify an RF signal.

As to the obviousness rejections, Claims 3, 4 and 16 provide the use of a diode for isolating the "rectified RF power source" from the "energy storage device." Such a diode, for example, prevents the battery power from negatively impacting the rectification circuit and/or interfering with the received RF signal. The Examiner admits that such a diode is not disclosed in Fischer, but states that such a diode is disclosed in Roz. The Applicants respectfully disagree.

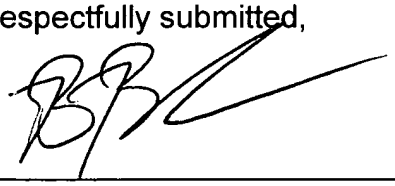
As shown in Figure 2, Roz discloses a storage capacitor 16 and a rectification

circuit 15. According to Roz, the storage capacitor 16 is used to store rectified DC voltage and the rectification circuit 15 is (i) formed by a bridge circuit comprising diodes 15a-15d and (ii) used for converting alternating voltage into a DC voltage. Col. 2, ll. 11-25. Thus, ***alternating*** RF power enters the rectification circuit 15, and ***rectified*** RF power exits the rectification circuit 15. The rectified RF power (as provided by the bridge circuit 15a-15d) is then provided to the storage capacitor 16. As can be seen in Figure 2, there is no diode between the rectified RF power and the capacitor, as required by Claims 3 and 16. In fact, Roz fails to disclose or suggest the presence of any device between the rectified RF power and the capacitor. While the rectifier ***itself*** includes diodes, there is no disclosure or suggestion of a diode located ***between*** the rectification circuit 15 and the storage capacitor 16. Therefore, the rejections of Claims 3 and 16, as well as Claim 4, which depends from Claim 3, should be withdrawn.

In view of the foregoing, the Applicants respectfully submit that Claims 1-16 are in condition for allowance. Reconsideration and withdrawal of the rejections is respectfully requested, and a timely Notice of Allowability is solicited. To the extent it would be helpful to placing this application in condition for allowance, the Applicants encourage the Examiner to contact the undersigned counsel and conduct a telephonic interview.

While the Applicants believe that no fees are due in connection with the filing of this paper, the Commissioner is authorized to charge any shortage in the fees, including extension of time fees, to Deposit Account No. 50-0639.

Respectfully submitted,



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Brian M. Berliner
Attorney for Applicants
Registration No. 34,549

O'MELVENY & MYERS LLP
400 South Hope Street
Los Angeles, CA 90071-2899
Telephone: (213) 430-6000